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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,139	12/04/2003	Johji Nakamoto	JP9-1999-0277-US2	6730

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EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,139

Applicant(s)

NAKAMOTO ET AL.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-35 is/are pending in the application.
- 4a) Of the above claim(s) 29-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-28 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 23 and 25 are amended in view of the amendment filed 27 September 2006. New claim 35 is added in view of the amendment. Therefore, claims 23-28 and 35 are currently under examination.

Status of Previous Rejections

2. The rejection of claims 23-28 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 7 and 19-21 of U.S. Patent No. 6,827,827 B2(US'827) is withdrawn in view of applicant's arguments filed 27 September 2006.

Specification

3. The amendment to the specification filed 27 September 2006 is entered.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 23-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Simpson et al. US 6,174,425 B1(Simpson).

Simpson teaches an electroplating apparatus comprising a plating tank, a source material electrically connected to a first terminal of power supply, an object electrically connected to a second terminal of the power supply and an insulating adjustment plate disposed between the source material and the object, wherein the insulating adjustment plate comprises a plurality of windows(Fig. 3 numerals 31, 34, 20 and 33). Simpson further teaches that insulating adjustment plate creates more laminar flow of the plating solution(col. 2 lines 59-60) and the insulating adjustment plate is made of non-conductive material such as polyethylene(col. 2 line 64 – col. 3 line 3). The insulating adjustment plate as taught by Simpson is in the vicinity of the object to be plated and is not in contact with the object.

Regarding amended feature of “wherein sizes and locations of said plurality of windows correspond to pattern densities of the plurality of portions of the object to be plated” as recited in claim 23, the examiner takes a position that this amended feature does not lend patentability to the instant claim 23 since different pattern densities on different portions of the object are still part of the object to be treated using the claimed apparatus. It is well settled that “expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.” Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, “[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

See MPEP 2115. In this case, the amended feature relates the instantly claimed apparatus to the object being worked, therefore, is not patentable.

Regarding the amended feature of "the current density on the object is substantially constant with different pattern densities of the plurality of portions" as recited in instant claim 25, the examiner takes a position that this amended feature does not lend patentability to the instant claim 25 for the same reasons as stated in the rejection of the amended feature in claim 23 above. In addition, the amended feature as recited in instant claim 25 is directed to a process limitation(i.e. constant current density) in an apparatus claim. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Therefore, the amended feature regarding the constant current density as recited in claim 25 is not patentable since it does not structurally distinguish the apparatus of Simpson and the apparatus of the instant invention.

Therefore, Simpson anticipates the instant claims 23-28.

6. Claims 23-28 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Hanson et al. US 6,254,742 B1(Hanson).

Hanson teaches an electroplating apparatus comprising a plating tank, a source material electrically connected to a first terminal of power supply, an object electrically connected to a second terminal of the power supply and an insulating adjustment plate disposed between the source material and the object(i.e. wafer), wherein the insulating

adjustment plate comprises a plurality of windows(Fig. 4 numerals 120 & 114, Figs. 6 and 8). In addition, Hanson teaches that the windows of the insulating adjustment plate enhances plating fluid flow and current distribution to the surface of the object to be plated which results in more uniform current density distribution(col. 7 lines 15-16 and 34-38). Hanson also teaches that the insulating adjustment plate is made of dielectric materials such as polypropylene and polyvinylidene fluoride(col. 7 lines 1-3). The insulating adjustment plate as taught by Hanson is in the vicinity of the object to be plated and is not in contact with the object.

Regarding amended feature of "wherein sizes and locations of said plurality of windows correspond to pattern densities of the plurality of portions of the object to be plated" as recited in claim 23, the examiner takes a position that this amended feature does not lend patentability to the instant claim 23 since different pattern densities on different portions of the object are still part of the object to be treated using the claimed apparatus. It is well settled that "expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). See MPEP 2115. In this case, the amended feature relates the instantly claimed apparatus to the object being worked, therefore, is not patentable.

Regarding the amended feature of "the current density on the object is substantially constant with different pattern densities of the plurality of portions" as recited in instant claim 25, the examiner takes a position that this amended feature does not lend patentability to the instant claim 25 for the same reasons as stated in the rejection of the amended feature in claim 23 above. In addition, the amended feature as recited in instant claim 25 is directed to a process limitation(i.e. constant current density) in an apparatus claim. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Therefore, the amended feature regarding the constant current density as recited in claim 25 is not patentable since it does not structurally distinguish the apparatus of Hanson and the apparatus of the instant invention.

Regarding new claim 35, Hanson further teaches that one of the pluralities of windows at one location of the insulating adjustment plate have one size while another one of the pluralities of windows at another location of the insulating adjustment plate have another size(Fig. 8). Therefore, the insulating adjustment plate of Hanson meets the structure limitation as recited in instant claim 35. The claimed window size and location correspondence to the pattern densities of the object being plating does not lend patentability to the instant apparatus claim since this correspondence relates the claimed apparatus to the objected being plating during an intended operation as discussed above. Also see MPEP 2115.

Therefore, Hanson anticipates the instant claims 23-28 and 35.

7. Claims 23-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Uzoh et al. US 6,261,426 B1(Uzoh).

Uzoh teaches an electroplating apparatus comprising a plating tank, a source material electrically connected to a first terminal of power supply, an object electrically connected to a second terminal of the power supply and an insulating adjustment plate disposed between the source material and the object(i.e. wafer), wherein the insulating adjustment plate comprises a plurality of windows(Fig. 1 numerals 14, 4, 12, 8 and 28). In addition, Uzoh teaches that the windows of the insulating adjustment plate controls the electrolyte flow to areas of the object to be plated in order to achieve uniform plating(col. 2 lines 5-18 and 57-67, col. 3 lines 54-57). Uzoh also teaches that the insulating adjustment plate is made of non-conductive materials such as polyvinylidene fluoride(i.e. PVDF)(col. 3 lines 44-46). The insulating adjustment plate as taught by Uzoh is in the vicinity of the object to be plated and is not in contact with the object.

Regarding amended feature of "wherein sizes and locations of said plurality of windows correspond to pattern densities of the plurality of portions of the object to be plated" as recited in claim 23, the examiner takes a position that this amended feature does not lend patentability to the instant claim 23 since different pattern densities on different portions of the object are still part of the object to be treated using the claimed apparatus. It is well settled that "expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore,

"[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). See MPEP 2115. In this case, the amended feature relates the instantly claimed apparatus to the object being worked, therefore, is not patentable.

Regarding the amended feature of "the current density on the object is substantially constant with different pattern densities of the plurality of portions" as recited in instant claim 25, the examiner takes a position that this amended feature does not lend patentability to the instant claim 25 for the same reasons as stated in the rejection of the amended feature in claim 23 above. In addition, the amended feature as recited in instant claim 25 is directed to a process limitation(i.e. constant current density) in an apparatus claim. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Therefore, the amended feature regarding the constant current density as recited in claim 25 is not patentable since it does not structurally distinguish the apparatus of Uzoh and the apparatus of the instant invention.

Regarding new claim 35, Uzoh further teaches that one of the pluralities of windows at one location of the insulating adjustment plate have one size while another one of the pluralities of windows at another location of the insulating adjustment plate have another size(Fig. 3-5). Therefore, the insulating adjustment plate of Uzoh meets

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the structure limitation as recited in instant claim 35. The claimed window size and location correspondence to the pattern densities of the object being plating does not lend patentability to the instant apparatus claim since this correspondence relates the claimed apparatus to the objected being plating during an intended operation as discussed above. Also see MPEP 2115.

Therefore, Uzoh anticipates the instant claims 23-28 and 35.

Response to Arguments

8. Applicant's arguments filed 27 September 2006 have been fully considered but they are not persuasive.

Applicant argues that Simpson, Hanson and Uzoh do not teach have window sizes and locations that correspond to the pattern densities of the object being plated.

The examiner does not find applicant's argument persuasive for the same reasons as stated the rejection grounds above. Also see MPEP 2115.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ


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